

## Three new species of Microgastrinae (Hymenoptera: Braconidae) from South Africa with notes on *Glyptapanteles acraeae* (Wilkinson)

by

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Three new species of Microgastrinae (Hymenoptera: Braconidae), *Dolichogenidea fucicola*, *Glyptapanteles pseudacraeae*, and *Parapanteles gerontogae* are described from South Africa. *Apanteles acraeae* Wilkinson is transferred to the genus *Glyptapanteles* as a new combination and it is redescribed to distinguish it from *G. pseudacraeae*.

### INTRODUCTION

Three new species of Microgastrinae (Hymenoptera: Braconidae) from South Africa are described here. Two of the new taxa belong to large, cosmopolitan, genera (*Glyptapanteles* Ashmead and *Dolichogenidea* Viereck), and the third species is assigned to *Parapanteles* Ashmead, a genus previously recorded only from the New World (Mason 1981). To place this latter species in context, its description is preceded by a brief introduction to the genus. In addition to the new taxa, *Apanteles acraeae* Wilkinson is transferred to the genus *Glyptapanteles* and is redescribed here to distinguish it from *Glyptapanteles pseudacraeae* **sp. nov.**

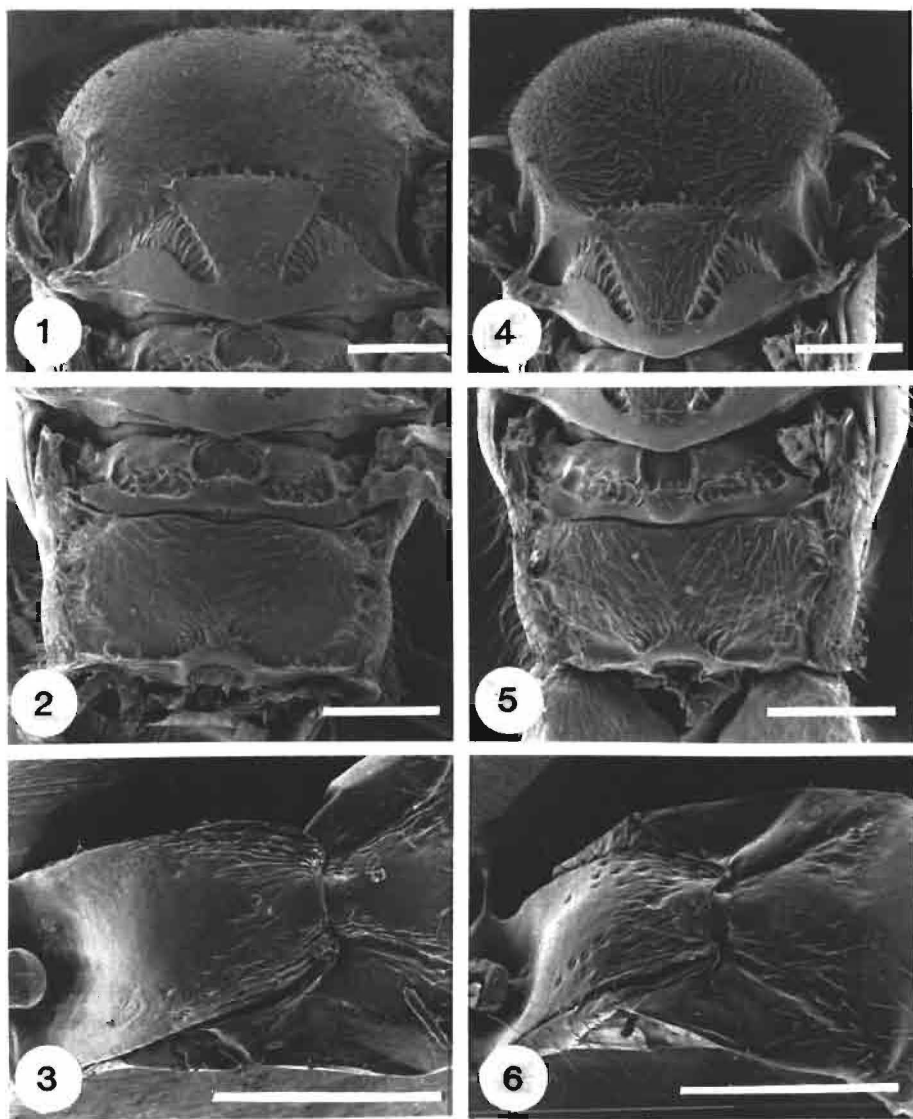
These miscellaneous descriptions would be more suitably placed in a taxonomic revision, but the African Microgastrinae are unlikely to be revised in the near future. Since data on the biologies of all these parasitoids may soon be published, the aim of this paper is to prevent the use of incorrect names and to limit the proliferation of published data on unnamed species.

Depositories for type material are as follows: **BMNH**, The Natural History Museum, London; **CNC**, Canadian National Collection, Ottawa; **NBIK**, National Botanical Institute, Kirstenbosch, South Africa; **SANC**, National Collection of Insects, Pretoria, South Africa.

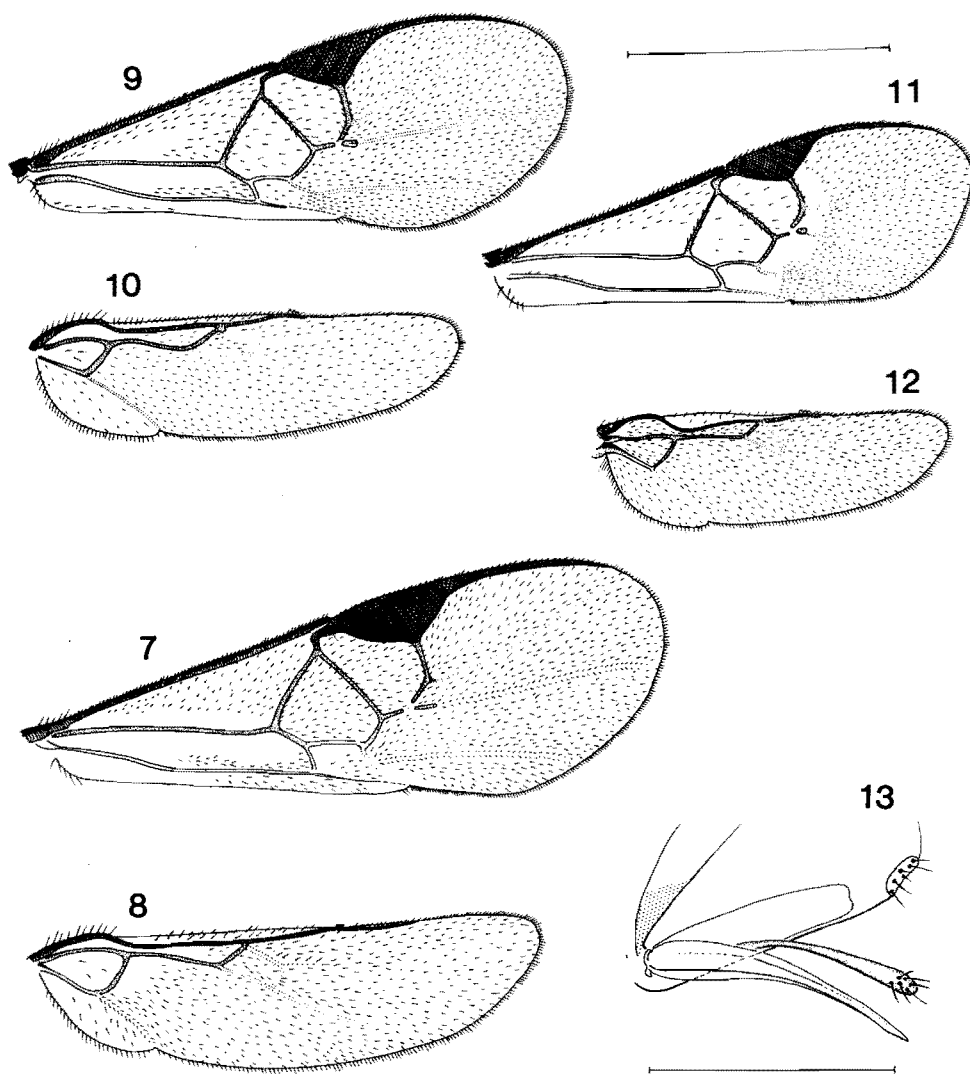
***Glyptapanteles acraeae* (Wilkinson) comb. nov.** Figs 1-3

***Apanteles acraeae* Wilkinson 1932: 304.**

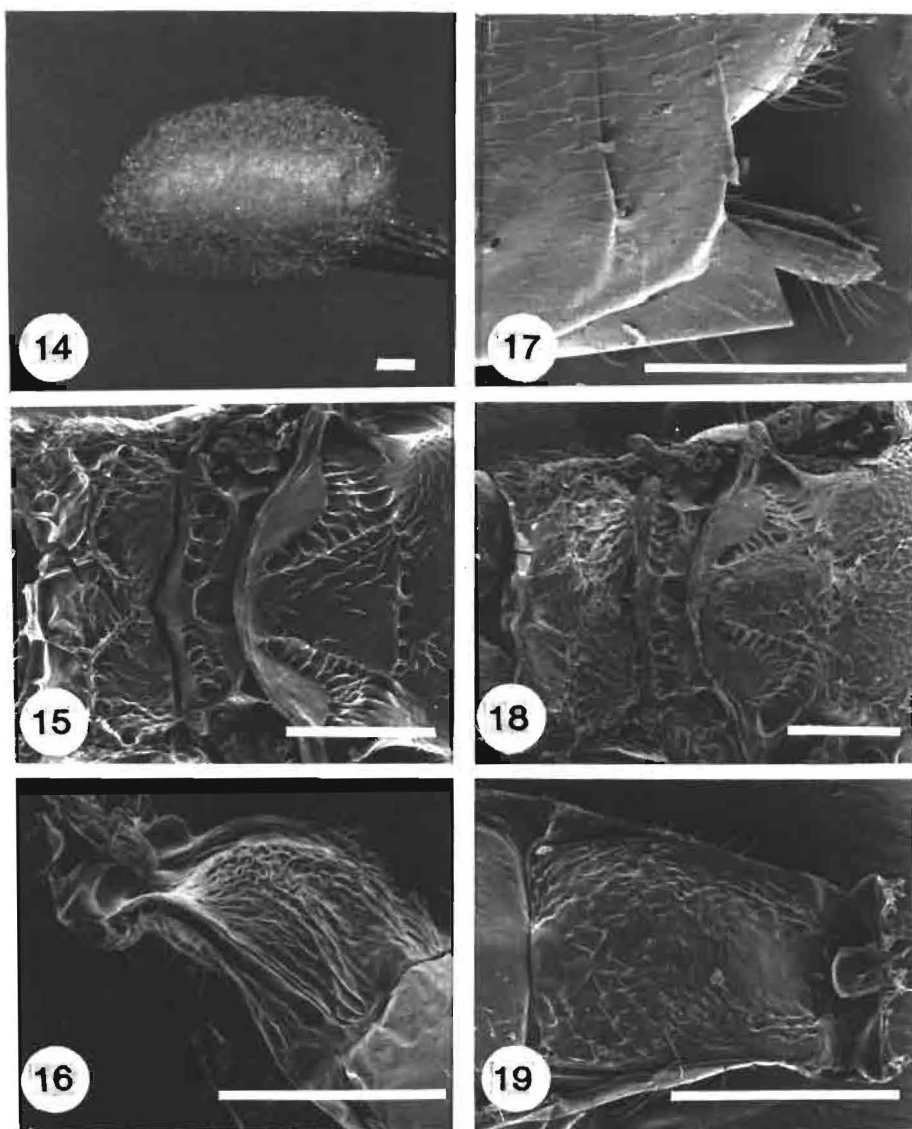
The following redescription supplements the original description by Wilkinson (1932) and highlights differences between this and the following species. In addition, differences between the original type series and new material described here are emphasized.



Figs 1-6. 1-3. *Glyptapanteles acraeae* (Wilkinson). 1. Anterodorsal mesosoma. 2. Posterodorsal mesosoma. 3. Dorsum of tergites 1 & 2. 4-6. *Glyptapanteles pseudacraeae* **sp. nov.** 4. Anterodorsal mesosoma. 5. Posterodorsal mesosoma. 6. Dorsolateral aspect of tergites 1 & 2. All scale bars equal to 100  $\mu$ .



Figs 7-13. 7 & 8. *Glyptapanteles pseudacraeae* sp. nov. 7. Forewing. 8. Hindwing. 9 & 10. *Dolichogenidea ficiola* sp. nov. 9. Forewing. 10. Hindwing. 11-13. *Parapanteles gerontogae* sp. nov. 11. Forewing. 12. Hindwing. Scale bar equals 1 mm. 13. Ovipositor, lateral aspect. Scale bar equal to 0.5mm.



Figs 14-19. 14. *Glyptapanteles pseudacraeae* **sp. nov.** cocoon. 15 & 16. *Dolichogenidea ficiola* **sp. nov.** 15. Posterodorsal mesosoma. 16. Tergites 1 & 2, anterodorsal aspect. 17-19. *Parapanteles gerontogeae* **sp. nov.** 17. Hypopygium and ovipositor. 18. Posterodorsal mesosoma. 19. Tergite 1, dorsal aspect. All scale bars equal to 100 $\mu$ .

Cotypes and specimens from Pretoria, both gender. Head: angle between ocelli obtuse, posterior ocellus separated from the eye margin by  $2\times$  its diameter and from the anterior ocellus by  $0.7\times$  its diameter. Mesosoma: disc of scutellum marginally longer than it is wide; central depression of the metanotum about  $1.5\times$  wider than it is long and elliptical, the sublateral lobes hardly visible. The propodeum polished with a distinct ridge from its base to  $1/3$  of its length.

Specimens from Kirstenbosch, both gender. Posterior ocellus separated from the eye margin by  $1.5\times$  its diameter and from the anterior ocellus by  $0.5\times$  its diameter. Mesosoma: disc of scutellum wider along the margin with the mesoscutum than it is long (Fig. 1); central depression of metanotum much wider than long ( $ca\ 2\times$ ) and w-shaped (Fig. 2), the phragma largely exposed except for a small median section (Fig. 2). Propodeum with several carinae radiating from its base but no distinct median ridge. Wing: 1Rs of forewing approximately  $1.4\times$  as long as 2Rs+M and as long as 1Cu1 and m-cu.

*Cocoon.* As described by Wilkinson. Cocoons from Pretoria were often white whereas those from Kirstenbosch were usually tawny-yellow.

*Hosts.* Previously recorded from *Acraea acerata* Hewitson on sweet potato and from *Acraea* probably *acerata* on *Ipomoea* sp. (Wilkinson 1932). Recorded here as a solitary parasitoid of 2nd instar *A. horta* (L.) caterpillars on *Kiggelaria africana* L. (Flacourtiaceae). The record of *Euproctis terminalis* Walker (Ulyett 1946) is incorrect and applies to *Glyptapanteles pseudacraeae*.

**MATERIAL EXAMINED:** Cotypes, 1 male and 1 female. **UGANDA:** Kampala, 22.vii.1930, Hargreaves, D109, ex *Acraea* probably *acerata* on *Ipomoea* sp. (BMNH). Additional material. **SOUTH AFRICA:** 5 females and 6 males, Cape Province, Kirstenbosch Botanic Garden,  $33^{\circ}55'S$ ,  $18^{\circ}25'E$ , 11.viii.1987, Donaldson, ex *Acraea horta* on *Kiggelaria africana* (NBIK, SANC, BMNH); 6 females and 2 males, Transvaal, Pretoria, Gardens of the Union Buildings,  $25^{\circ}45'S$ ,  $28^{\circ}12'E$ , 11.xi.1986, Donaldson, ex *Acraea horta* on *Kiggelaria africana* (NBIK, SANC, BMNH).

### *Glyptapanteles pseudacraeae* sp. nov., Figs 4–8, 14

*Apanteles acraeae* Wilkinson: Ulyett, 1946: 34. Misidentification.

*Female.* Length 2.7–3.2mm, antenna 3–3.2mm, wing length 3–3.2mm. Colour: black; tegula, lateral margins of tergite 1, mid and fore legs entirely and hind tibia proximally, yellow; tergite 2, hind tibia distally and entire tarsus, brown; remaining tergites yellow-brown; sternites pale; hind femur pale yellow-black; antenna red testaceous. Head: face polished with small, evenly spaced, punctation; eyes slightly convergent; two penultimate segments of antenna  $ca\ 1.3\times$  as long as wide; angle between ocelli slightly more than  $90^{\circ}$ ; posterior ocellus separated from the anterior ocellus and the eye margin by about its own diameter; vertex with weak punctures, antennal sockets smooth and shiny. Mesonotum: mesoscutum weakly punctate medially with long inward-directed setae, more strongly punctured towards the margins (Fig. 4); disc of scutellum sparsely punctate, about as wide across the juncture with the mesoscutum as its length (Fig. 5); phragma obscured medially by the apical margin of the scutellum (Fig. 5); central depression of the metanotum barrel-shaped, about as long as its greatest width; sublateral lobe of metanotum weak; propodeum with definite, even punctation becoming rugose medially towards the base; hind coxa more or less symmetrical when

viewed from the side, uniformly setose except for a basal depression near the trochanter, and the dorsal ridge, which lack setae. Wing: as in Figs 7 & 8, the stigma uniformly pigmented;  $1Cu_1$ , m-cu,  $2Rs+M$  and  $1Rs$  of forewing all about the same length and  $0.7\times$  as long as  $2Cu_1$ . Metasoma: first tergite tapers strongly from about half its length (Fig. 6), its apical width less than  $1/4$  of its entire length; ovipositor sheath short, about  $0.5\times$  as long as the hind basitarsus.

**Male.** Similar to female except as follows. Length 2.5–3mm, antenna 4mm, wing length 2.9–3.2mm. Colour: generally darker especially the metasoma. Head: two penultimate antennal segments about  $2\times$  as long as wide.

**Cocoon.** Very characteristic: the puparium is enshrouded by a latticed mass of yellow silk (Fig. 14) and is found singly or in small groups on leaves, branches, or spines of the host's food plant.

**Hosts.** A solitary parasitoid of *Euproctis terminalis* Walker (Lymantriidae) on pines (Ulyett 1946) and *Euproctis* sp. on *Acacia karroo*.

**Remarks.** Although this species has been previously misidentified as *G. acraeae* (Ulyett 1946), it is undoubtedly different. The shape of the metanotal depression, the punctuation on the propodeum, and the shape and character of the hind coxa are all distinguishing features. In addition, the cocoon of *G. acraeae* has a net-like covering that is separate from the cocoon except where it attaches to a substrate whereas the cocoon of *G. pseudacraeae* is covered by a latticed mass of silk that is not separate from the cocoon.

**MATERIAL EXAMINED:** Holotype female. **SOUTH AFRICA:** (Transvaal) Pretoria, Oct. 1945, ex *Euproctis* on *Acacia*, Pienaarspoort, Ulyett (SANC). 7 Paratypes. **SOUTH AFRICA:** Tvl: 1 female, Pienaarspoort,  $25^{\circ}44'S$ ,  $28^{\circ}24'E$ , 29.xi.1945, AcPl 249, Townesly (SANC); 1 male and 1 female, Belfast,  $25^{\circ}40'S$ ,  $30^{\circ}03'E$ , 25.iv.1945, AcPl 244, Ulyett, ex *Euproctis terminalis* (SANC); 4 males, Pretoria, 27.i.1986, on defoliated *Acacia karroo*, AcSN 1245, Neser (3 SANC, 1 NBIK).

### ***Dolichogenidea ficicola* sp. nov.** Figs 9, 10, 15 & 16

**Female.** Length 2.2–2.5mm, antenna 2.3–2.5mm, wing length 2.8–3mm. Colour: black; all femora and fore and middle coxae yellow, fore and middle tarsi brown, hind tibia proximally yellow but blackish brown distally. Head: eyes slightly convergent; two penultimate segments of antenna about  $1.2\times$  as long as wide; posterior ocelli separated from each other and from the eye margin by  $2\times$  their own diameter, and from the anterior ocellus by about  $0.7\times$  their diameter; angle between ocelli greater than  $120^{\circ}$ . Mesosoma: mesoscutum with strong uniform punctuation; disc of scutellum more sparsely punctate than mesoscutum (Fig. 15); phragma hardly visible from above, partly obscured by the prominent acute sublateral lobes of the metanotum (Fig. 15); propodeum with a large hexagonal areola (Fig. 15), poorly formed anteriorly, and strong costulae. Wing:  $2Rs+M$  and  $1Rs$  of forewing about the same length, and  $0.6\times$  as long as  $2r$ , m-cu,  $2Cu_1$  and  $1Cu_1$ . Metasoma: first tergite slightly barrel-shaped, apically strongly rugulose becoming striate towards the margins, and with an apical median depression (Fig. 16); second tergite  $3\times$  wider than its greatest length and hardly wider posteriorly than the apex of tergite 1; hypopygium striate and sharply folded; ovipositor sheaths as long as the hind femur, uniformly setose below the midline but polished above; ovipositor slightly decurved.

**Male.** Same as for female except as follows. Length 2–2.2mm, antenna 2.8–3mm, wing length 2.2–2.4mm. Colour: hindleg completely black except for slight

yellowing proximally on the tibia; midleg yellow-black and foreleg yellow except for blackening of the distal tarsal segments. Head: two penultimate antennal segments  $2\times$  as long as wide. Metasoma: tergite 1 considerably less rugulose than in the female.

**Cocoon.** Compact white cocoon usually entangled with the silk shelter spun by its host.

**Host.** Solitary parasitoid of an unidentified Tortricid larva (Lepidoptera) (accession number NBG 9) on *Ficus sur* Forssk. (Moraceae).

**Remarks.** The genus *Dolichogenidea* needs to be revised, particularly for the Afrotropical region, and probably includes many species from Nixon's *ultor* and *laevigatus* groups of *Apanteles* (Mason 1981) and from Wilkinson's group "S" of the same genus. *D. ficicola* is close to *Apanteles diparopsidis* Lyle and *A. coffea* Wilkinson and these species should be transferred to *Dolichogenidea*. This would, however, be more appropriately dealt with in a revision of the genus. *D. ficicola* can be separated from both these species by the uniformly pigmented pterostigma and the rugosity on the first tergite.

**MATERIAL EXAMINED:** Holotype female (**SANC**) and 7 paratypes, 2 females (**SANC** & **NBIK**) and 5 males (2 **SANC** & 3 **NBIK**). **SOUTH AFRICA:** Cape Province, Kirstenbosch Botanic Gardens, Cape Town,  $33^{\circ}55'S$ ,  $18^{\circ}25'E$ , 20.iii.1988, ex tortricid larva on *Ficus sur*. Donaldson.

### The genus *Parapanteles* Ashmead

Mason (1981), in a revision of the Microgastrinae, resurrected the genus *Parapanteles* Ashmead for a group of species which definitely belong to the tribe Cotesiini, but which have an areolate propodeum. This feature is considered to be unusual and primitive within the tribe (Mason 1981). Only two species, *P. aletiae* (Riley) from the southern U.S.A. and *P. paradoxus* (Muesebeck) from Costa Rica, were placed in this genus although several undescribed Neotropical species were considered to belong here (Mason 1981).

Distinguishing features of the genus *Parapanteles* include a short and decurved ovipositor that is strongly tapered about its midlength, a propodeum bearing a large but not always well-defined areola on its declivous face and a median carina on the horizontal face, strong costulae on the propodeum, and macrolepidopterous hosts (Mason 1981). The species described below has all these features and is therefore placed in the genus *Parapanteles*.

Although species of *Parapanteles* have previously been recorded only from the U.S.A. and the Neotropical region, its presence in the Old World is not unexpected. Several other genera such as *Pseudapanteles* Ashmead, *Buluka* de Saeger, *Wilkinsonellus* Mason, and *Miropotes* Nixon were first described from limited collections but are now known to have more cosmopolitan distributions (Mason in litt. 1988).

### *Parapanteles gerontogae* sp. nov. Figs 11–13, 17–19

**Female.** Length 2–2.2mm, antenna 2–2.2mm, wing length 2–2.3mm. Colour: black; fore tibia and tarsus, mid tibia, proximal part of hind tibia, and distal part of fore femur, yellow; hind tibia distally, and hind tarsus, brown. Head: eyes marginally convergent; preapical antennal segments about  $1.3\times$  longer than wide; angle between ocelli strongly obtuse; posterior ocelli separated from the eye margin and from each other by  $2.5\times$  their diameter and from the anterior ocellus by  $1\times$  their diameter. Mesosoma:

mesoscutum and disc of scutellum with strong, evenly spaced, punctation (Fig.18); phragma almost entirely obscured from above; metanotum with pronounced, ridged, sublateral lobes; propodeum with a pentagonal areola on the declivous face and a short median carina anteriorly, costulae separate the declivous and horizontal faces (Fig. 18); the horizontal face dull and reticulate, the declivous face polished and with sparse punctation. Wings: as in Figs 11 & 12, the stigma uniformly pigmented and the basal portion of the forewing almost without setae; 1Cu1 and m-cu of forewing of equal length and about  $1,3\times$  as long as 2Rs+M; 2r and 1Rs of forewing without a distinct junction; 2r at an angle of more than  $90^\circ$  to the front wing margin. Metasoma: tergite 1 parallel-sided up to its midlength, broadening and barrel-shaped in the apical half; basal half of tergite 1 polished, the remainder weakly rugulose (Fig.19); tergite two  $2,5\times$  as wide as long, very weakly rugose, broadening slightly posteriorly; remainder of tergites highly polished and moderately setose; hypopygium acute; ovipositor sheath short, about as long as the mid-basitarsus; ovipositor short and decurved, tapered from about its midlength (Fig. 13).

**Male.** Differs from female as follows. Length 1,8–2,1mm, antenna 2–2,3mm, wing length 1,9–2,1mm. Colour: mid and hind legs entirely black except for proximal yellowing on the tibia; fore femur distally yellow, tibia proximally yellow, remainder of tibia and tarsus brown. Head: two penultimate antennal segments about  $2,5\times$  as long as wide.

**Cocoon.** Small white compact cocoon found either singly or in groups on grass and wheat stalks or occasionally attached to the host larva.

**Host.** Gregarious parasitoid of *Spodoptera exempta* (Walker) (Noctuidae) caterpillars on wheat.

**Remarks.** The pronounced sublateral lobes of the metanotum distinguish *P. gerontogae* from both *P. aletiae* and *P. paradoxus*. *P. gerontogae* can be further distinguished from *P. paradoxus* by the punctation on the disc of the scutellum, the less pronounced rugosity of the first tergite, and the virtual smoothness of the second tergite. According to Mason (in litt. 1988), *P. gerontogae* is similar to some undescribed neotropical species due to the tall lobes on the metanotum and the smooth tergites.

**MATERIAL EXAMINED:** Holotype female (**SANC**) and 17 paratypes, 5 females (**CNC, NBIK, SANC**) and 12 males (**CNC, NBIK, SANC**). **SOUTH AFRICA:** Cape Province, 5km south of Langebaan,  $33^\circ 05'S$ ,  $18^\circ 03'E$ , 10.vii.1987, 12.x.1988, ex *Spodoptera exempta* on wheat, Donaldson.

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